

PATENT APPLICATION

In re Application of:

Application No.: Not Yet Assigned

For: SEMICONDUCTOR ELEMENT
AND ITS MANUFACTURING
METHOD

July 23, 2003

Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56 and in accordance with the practice under 37 C.F.R. §§ 1.97 and 1.98, the Examiner's attention is directed to the documents listed below and on the enclosed Form PTO-1449.

U.S. Patent No. 4,600,801
U.S. Patent No. 4,609,771
U.S. Patent No. 4,775,425
U.S. Patent No. 5,486,237
U.S. Patent No. 5,720,827
U.S. Patent No. 5,851,904
U.S. Patent No. 5,913,986
U.S. Patent No. 6,013,544
U.S. Patent No. 6,020,224
U.S. Patent No. 6,027,987

U.S. Patent No. 6,033,940
U.S. Patent No. 6,180,870

Europe 0 675 551
Germany 43 33 416
China 1175095A

J. Meier, et al., "Towards High Efficiency Thin Film Silicon Solar Cells With The 'Micromorph' Concept", Solar Energy Materials and Solar Cells, vol. 49, pp. 35-44 (1997).

J. Yi, et al., "Amorphous and Micro-Crystalline Silicon for Photovoltaic Application", Proc. of the Photovoltaic Spec. Conf., vol. 23, pp. 977-980 (1993).

J. Meier, et al., "On The Way Towards High Efficiency Thin Film Silicon Solar Cells By The Micromorph Concept", Mat. Res. Soc. Symp. Proc., vol. 420, pgs. 3-14 (1996).

A. Matsuda, "Structural Study on Amorphous-Microcrystalline Mixed-Phase Si:H Films", Jap. J. Appl. Phys., vol. 20, no. 6, pgs. L439-L442 (1981).

A. Matsuda, et al., "Boron Doping of Hydrogenated Silicon Thin Films", Jap. J. Appl. Phys., vol. 20, no. 3, pgs. L183-L186 (1981).

A. Matsuda, et al. "Electrical and Structural Properties of Phosphorous-Doped Glow-Discharge Si: F: H and Si:H Films", Jap. J. Appl. Phys., vol. 19, no. 6, pgs. L305-L308 (1980).

S. Usui, et al., "Properties of Heavily Doped GD-Si With Low Resistivity", Journal of Non-Crystalline Solids, vol. 34, no. 1, pgs. 1-11 (1979).

All of the above documents were cited in parent Application No.

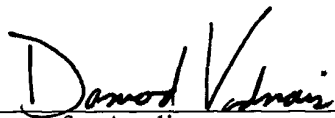
09/839,891 and/or grandparent Application No. 09/266,829 and might be deemed pertinent

for the reasons given there. The Examiner is respectfully directed to the Patent and Trademark Office files for review of these documents. See MPEP § 609.

Inasmuch as the subject application is being filed concurrently herewith, it is believed that this Information Disclosure Statement is timely. See 37 C.F.R. 1.97(b)(3). Accordingly, the Examiner is urged to study this information in its entirety and to form an independent determination of the materiality of the information to the claimed invention. Additionally, the Examiner is requested to indicate that this information has been considered by initialing the appropriate portion of the Form PTO-1449.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office by telephone at (714) 540-8700. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



Attorney for Applicants

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FORM PTO 1449 (modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)				ATTY DOCKET NO. 03500.013395.2		APPLICATION NO. Div. of 09/839,891	
				APPLICANT KEISHI SAITO ET AL.			
				FILING DATE H rewith		GROUP NYA	
U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		4,600,801	7/15/86	Guha et al.	136	249	
		4,609,771	9/2/86	Guha et al.	136	249	
		4,775,425	10/4/88	Guha et al.	136	249	
		5,486,237	1/23/96	Sano et al.	136	258	
		5,720,827	2/24/98	Simmons	136	250	
		5,851,904	12/22/98	Schwarz et al.	438	482	
		5,913,986	6/22/99	Matsuyama	136	255	
		6,013,544	1/11/00	Makita et al.	438	166	
FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
		0 675 551	10/4/95	Europe			
		43 33 416	4/6/95	Germany			
OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)							
		J. Meier, et al., "Towards High Efficiency Thin Film Silicon Solar Cells With The 'Micromorph' Concept", Solar Energy Materials and Solar Cells, vol. 49, pp. 35-44 (1997).					
		J. Yi, et al., "Amorphous and Micro-Crystalline Silicon for Photovoltaic Application", Proc. of the Photovoltaic Spec. Conf., vol. 23, pp. 977-980 (1993).					
		J. Meier, et al., "On The Way Towards High Efficiency Thin Film Silicon Solar Cells By The Micromorph Concept", Mat. Res. Soc. Symp. Proc., vol. 420, pgs. 3-14 (1996).					
		A. Matsuda, "Structural Study on Amorphous-Microcrystalline Mixed-Phase Si:H Films", Jap. J. Appl. Phys., vol. 20, no. 6, pgs. L439-L442 (1981).					
		A. Matsuda, et al., "Boron Doping of Hydrogenated Silicon Thin Films", Jap. J. Appl. Phys., vol. 20, no. 3, pgs. L183-L186 (1981).					
		A. Matsuda, et al. "Electrical and Structural Properties of Phosphorous-Doped Glow-Discharge Si: F: H and Si:H Films", Jap. J. Appl. Phys., vol. 19, no. 6, pgs. L305-L308 (1980).					
		S. Usui, et al., "Properties of Heavily Doped GD-Si With Low Resistivity", Journal of Non-Crystalline Solids, vol. 34, no. 1, pgs. 1-11 (1979).					
EXAMINER				DATE CONSIDERED			

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

